Stigma, Mental Health, and Resilience in an Online Sample of the US Transgender Population

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Objectives. We assessed the association between minority stress, mental health, and potential ameliorating factors in a large, community-based, geographically diverse sample of the US transgender population.

Methods. In 2003, we recruited through the Internet a sample of 1093 male-to-female and female-to-male transgender persons, stratified by gender. Participants completed an online survey that included standardized measures of mental health. Guided by the minority stress model, we evaluated associations between stigma and mental health and tested whether indicators of resilience (family support, peer support, identity pride) moderated these associations.

Results. Respondents had a high prevalence of clinical depression (44.1%), anxiety (33.2%), and somatization (27.5%). Social stigma was positively associated with psychological distress. Peer support (from other transgender people) moderated this relationship. We found few differences by gender identity.

Conclusions. Our findings support the minority stress model. Prevention needs to confront social structures, norms, and attitudes that produce minority stress for gender-variant people; enhance peer support; and improve access to mental health and social services that affirm transgender identity and promote resilience. (*Am J Public Health*. Published online ahead of print March 14, 2013: e1–e9. doi:10.2105/AJPH.2013.301241)

Transgender people are a diverse population of individuals who cross or transcend culturally defined categories of gender.[1] Transgender identities include male-to-female and female-to-male transsexuals (transgender women and men, respectively, who feminize or masculinize their bodies through hormone therapy or surgery), cross dressers or transvestites (who dress in clothes typically worn by another gender as a means of self- or erotic expression), drag queens and kings (female or male impersonators), and other gender-variant individuals, who may describe themselves with labels such as bigender or genderqueer.

Transgender people face systematic oppression and devaluation as a result of social stigma attached to their gender nonconformity.[2–6] Among a Minnesota sample of 181 transgender participants in a sexual health seminar, 66% reported being discriminated against because of their gender identity or presentation.[7] This discrimination can be compounded by multiple stigmas and take on various forms: racial, employment, and economic; it may even be expressed in physical violence.[8,9] In a US study of 402 transgender persons, 56% reported experiencing verbal harassment; 37%, employment discrimination; and 19%, physical violence.[6]

The minority stress model[10–12] suggests that the stress associated with stigma, prejudice, and discrimination will increase rates of psychological distress in the transgender population. According to this model, minority stress is unique (additive to general stressors experienced by all people); it is also socially based and chronic, stemming from relatively stable social structures and norms beyond the individual. Minority stress processes can be both external—consisting of actual experiences of rejection and discrimination (enacted stigma)—and, as a product of these, internal, such as perceived rejection and expectations of being stereotyped or discriminated against (felt stigma) and hiding minority status and identity for fear of harm (concealment).[10,11,13] Social support, self-acceptance, and integration of minority identity can ameliorate minority stress. A community of peers allows for a social environment in which variant identity is not stigmatized and in which self-evaluation can occur in comparison with like others, rather than with members of the majority culture.[10,14] Through coming out, people can overcome negative self-evaluation and learn to cope with the adverse effects of minority stress.[15] Thus, minority stress and resilience interact in predicting psychological distress.

The minority stress model was tested in gay, lesbian, and bisexual individuals to explain their higher prevalence of depression, anxiety, and substance use than is found among heterosexual individuals.[10,11] For example, gay men with high levels of minority stress related to stigma and discrimination were 2 to 3 times as likely as respondents with lower stress to report high levels of psychological distress.[11] In the transgender population, several qualitative studies strongly suggest that stigma negatively affects mental health,[5,16–18] but few studies have examined this relationship quantitatively. Rates of depression were high in a transgender sample in San Francisco, California (n = 515; 62% among transgender women; 55% among transgender men),[8,19] and gender-based discrimination was an independent predictor of attempted suicide.[19] Among transgender women of color with a history of sex work (n = 327), experiences of discrimination were common (verbal, 37%; physical, 20%; employment, 39%) and more prevalent among depressed than nondepressed individuals.[20] Among an expanded, multiethnic sample of these transgender women (n = 573), 49% reported depression, and experiences of discrimination and the need for and satisfaction with social support were positively associated with depression.[21] A recent study of transgender women in New York City (n = 571) compared the life chart interviews of 2 age cohorts (19–39 and 40–59 years) and found that gender-related abuse was strongly associated with depression during early stages of life, but, especially for the younger cohort, declined during later stages of life, which the authors

attributed to the development of moderately effective coping mechanisms.[22]

For transgender people, coping with stigma can mean concealing transgender identity, which may reinforce their efforts to pass as a nontransgender woman or man, either in the role congruent with their gender assigned at birth or in the cross-gender role.[23–25] Transgender men are thought to be able to pass more easily, because of the differential impact of masculinizing versus feminizing hormones.[26] This greater ability to pass, along with the belief that gender nonconformity is more stigmatized among men than women, has been invoked as an explanation for the finding that transgender men are better adjusted after transition than are transgender women.[27–30] However, successful passing does not necessarily ameliorate minority stress. Concealment is an attempt to avoid the negative consequences of stigma, but it can result in hypervigilance and a preoccupation with hiding, which itself can become a significant source of stress.[10,31–35]

Among gay, lesbian, and bisexual individuals, identity affirmation and disclosure to similar others, friends, family, and therapists have been shown to ameliorate the negative effects of minority stress on mental health.[15,36–41] Consistent with the minority stress model, this positive effect was attributed in part to the benefits of group identity and support: those who are invested in concealing their minority identity are less able to benefit from the affirmation and empowerment that a community of similar others can provide.[42–44] Thus, disclosure and social support, and developing pride in a minority identity, seem to moderate the negative effects of minority stress on mental health.[11,45,46]

Knowledge of stigma, mental health, and factors of resilience or minority coping remains relatively limited as it applies to sexual and gender minority populations. This is particularly so for the transgender population. The few extant studies involved very high-risk transgender populations in urban settings[19–22,47] or clinical or very small samples[48–50] or did not use standardized measures of mental health.[51,52]

To address these limitations and gaps in knowledge, we analyzed cross-sectional data from a large and diverse online sample of transgender persons in the United States to obtain prevalence estimates of psychological distress (depression, anxiety, and somatization) and stigma (enacted and felt) and to test the association between these measures. Our hypotheses, informed by the minority stress model, were that the minority stressors of felt stigma, enacted stigma, and concealment of transgender identity (reflected in a stronger investment in passing as a member of the opposite gender and living in stealth, highly closeted) would be negatively associated with mental health and that this association would be moderated by factors of resilience such as family support, peer support, and identity pride. Empirical support for these hypotheses would strongly argue for confronting the social structures, norms, and attitudes that produce minority stress for gender-variant people and improving access to mental health and social services that affirm transgender identity and promote resilience.

We also tested a series of related hypotheses regarding the specific associations of concealment or disclosure of transgender identity and stigma with anticipated gender differences (transgender women vs men) in our variables of interest. Because identity concealment offers fewer opportunities to challenge perceived or anticipated negative evaluations of identity by the majority culture, we expected investment in passing to be associated with felt stigma. Conversely, we expected coming out and greater willingness to be open about being transgender to be associated with enacted stigma—actual experiences of rejection and discrimination. In addition, because gender nonconformity is thought to be more stigmatized among men than women,[28,30] we expected transgender women to report higher levels of psychological distress than did transgender men.

Finally, because passing as the opposite gender is thought to be easier for transgender men than women,[29] we expected transgender women to report higher levels of enacted stigma (the negative effect of being visible), but lower levels of felt stigma (the positive effect of being visible, which creates greater opportunities for challenging perceived or anticipated negative evaluations by the majority culture). Empirical support for these hypotheses would enable us to identify subgroups of the transgender population at particularly high risk for the negative impact of minority stress on mental health and to design targeted intervention strategies.

METHODS

Our data came from a larger cross-sectional Internet-based study examining the influence of gender identity and gender-related stigma on HIV risk, with a special focus on the transgender population. The secondary data analyses reported here were not specifically designed to test Meyer's minority stress model,[10–12] but they explore associations among related constructs and test hypotheses informed by that model.

Procedures for online recruitment, consent, and enrollment are described elsewhere.[53] Briefly, in 2003 we recruited a large convenience sample from transgender community Web sites and online mailing lists, journals, and forums (list available from the authors). A click on the recruitment banner or link opened the home page. Individuals were eligible to participate if they self-identified as transgender, were aged 18 years or older, and lived in the United States. To be inclusive and account for the gender diversity within this community, we set an enrollment quota in an attempt to recruit equal numbers of each type of transgender identity: transsexual, cross dresser, drag queen or king, or other.

The survey assessed participants' sociodemographic characteristics, transgender identity, sexual behavior, substance use, experiences of felt and enacted gender-related stigma, social support, and mental health. Questions were presented in 10 separate sections. A progress bar indicated what proportion of the questions had been completed. Most participants completed the survey in 50 to 60 minutes. Respondents were offered a $30 online gift certificate to compensate them for their time and effort. We applied a computerized deduplication, cross-validation protocol to confirm participants' eligibility and to test for survey validity and uniqueness. A computer program screened for (1) nonunique IP addresses, zip codes, dates of birth, and passwords; (2) user names that matched for the first 4 characters; (3) age calculated from the date of birth that did not match the age given; and (4) survey completion time of less than 30 minutes. We examined surveys flagged by this program and, depending on the number of failed checks, removed them from the data set (n = 44; 3.2% of total submitted).[54]

Measures

We used 8 single items adapted from the 2000 US Census to assess age, gender, ethnicity, race, education, income, marital status, and community (size of town or community of residence). Responses to questions about genital status, gender assigned at birth, and self-identification determined whether respondents were transgender women or men.

We assessed enacted stigma by 10 items that asked participants whether they had experienced various forms of discrimination because of their transgender identity or gender presentation,[19] for example, "Have you ever been verbally abused or harassed and thought it was because of your transgender identity or gender presentation?" Answers were yes or no. Internal consistency reliability for this scale was 0.74. Test–retest reliability (n = 20) was 0.79.

We assessed felt stigma with the 10-item adaptation of the Stigma Consciousness Scale.[55] Respondents indicated to what extent they agreed with statements such as, "Most people have a lot more transphobic thoughts than they actually express" and "Most people have a problem viewing transgender people as equals." Possible responses ranged from strongly agree to strongly disagree on a 7-point Likert scale, with higher scores indicating higher levels of felt stigma. We summed the scores, then divided by the number of completed items to arrive at a computed score that reflected the original metric of the Likert scale. Internal consistency reliability for this scale was 0.77. Test–retest reliability (n = 19) was 0.70.

We assessed mental health with a short form of the Brief Symptom Inventory, the Brief Symptom Inventory (BSI)-18.[56] In addition to a total score representing the individual's overall psychological distress (the Global Severity Index [GSI]), the BSI-18 contains 6-item subscales for depression, anxiety, and somatization (i.e., symptoms of cardiovascular, gastrointestinal, and other physiological systems observed in presentations of anxiety and depression). For each item, respondents indicated on a 5-point Likert scale how much a particular symptom had distressed or bothered them during the past 7 days: (1) not at all, (2) a little bit, (3) moderately, (4) quite a bit, and (5) extremely. Example items are "feeling hopeless about the future" (depression), "feeling tense or keyed up" (anxiety), and "nausea or upset stomach" (somatization). Internal consistency reliabilities were 0.94 for the total scale and 0.91, 0.89, and 0.82 for the subscales of depression, anxiety, and somatization, respectively. Test–retest reliability (n = 20) was 0.72 for the total scale and 0.73, 0.70, and 0.66 for the depression, anxiety, and somatization subscales, respectively. To compare scores to community norms, we calculated T scores (standardized scores with a mean of 50 and a standard deviation of 10); T scores of 63 or higher (as determined by the developers of the BSI-18 from a sample of 605 male and 517 female employees of a national US corporation[56]) were indicative of a positive case for the 3 subscales, and a T score of 63 or higher for the GSI or a positive case for at least 2 of the subscales indicated a positive case for the GSI.

We assessed gender dysphoria, defined as psychological distress inherent to a conflict between gender assigned at birth and gender identity,[1] by asking, "How comfortable are you currently with the sex you were assigned at birth?" Answers were very uncomfortable to very comfortable on a 7-point Likert scale. Test–retest reliability (n = 20) was 0.85.

We measured investment in passing (as an indication of concealment) with a 14-item subscale of the Transgender Identity Survey (W. O. B. et al., unpublished data, January, 2010). Respondents indicated their agreement with statements on how invested they were in passing as a nontransgender woman or man, for example, "If I look the part, talk the talk, and walk the walk of a woman (man), it will allow others to accept me" and "Being read makes me try harder to pass." Answers were strongly disagree to strongly agree on a 7-point Likert scale. Higher scores indicated greater investment in passing. Internal consistency reliability of this subscale was 0.92. Test–retest reliability (n = 19) was 0.94.

We assessed outness about being transgender (as an indication of disclosure) and identity pride with a 13-item subscale of the Transgender Identity Survey (W. O. B., et al., unpublished data, January, 2010). Respondents indicated their agreement with statements on how open they were about their transgender identity with others with items such as "I am comfortable revealing to others that I am transgender" and "Being transgender makes me feel special and unique." Responses were strongly disagree to strongly agree on a 7-point Likert scale. Higher scores indicated greater openness and pride. Internal consistency reliability of this subscale was 0.93. Test–retest reliability (n = 19) was 0.95.

We calculated family support as the mean of 2 items: "How supportive do you feel your family of origin (parents and/or siblings) is regarding your transgender identity?" and "How supportive do you feel your immediate family (partner, children) is regarding your transgender identity?" Answers on a 7-point Likert scale were not at all supportive to extremely supportive. Test–retest reliability (n = 10) was 0.88.

We assessed peer support by asking, "What portion of your social time is spent with transgender people?" and "How often have you felt like you were the only transgender person in the area where you live?" Responses, on 7-point Likert scales, were none of the time to all of the time for the first question and never to always for the second. Test–rest reliability (n = 20) was 0.87.

Statistical Analysis

We examined gender differences (transgender women vs men) in demographic variables by *t*-test for independent samples and the χ^2 test. We tested gender differences in the stigma and mental health measures with logistic and linear regression (ordinary least squares) to control for significant demographic differences. We tested gender differences in the median number of different enacted stigma experiences with a Mann–Whitney *U* test. We converted BSI-18 scores to T scores to compare transgender participants' scores to those of the BSI-18 sample for community norms.[56] This allowed us to classify a participant's score as a case if the T score was 63 or higher, corresponding to the 90th percentile of the respective community norms, as recommended by Derogatis.[56] We tested gender differences in the number of cases with logistic regression, with control for demographic factors.

We used hierarchical regression to test for associations between demographics, investment in passing, outness, and enacted stigma; between demographics, investment in passing, outness, and felt stigma; and between demographics, minority stress processes (enacted stigma, felt stigma, investment in passing), the hypothesized moderators (family support, peer support, identity pride), and the BSI-18 GSI.

For the models with enacted or felt stigma as the dependent variable, we entered demographics in step 1, passing and outness in step 2, and the interaction terms between gender and passing or outness in step 3. For the interaction terms, we used effect coding rather than dummy coding (transgender men = +1; transgender women = −1), so the constant could be interpreted as the grand mean rather than the reference group mean, making interpretation of the B weights easier.[57,58] For the model with psychological distress as the dependent variable, we entered demographics in step 1, minority stress processes in step 2, moderators in step 3, and interaction terms between minority stress processes and hypothesized moderators in step 4.

Because of collinearity among the interaction terms, we added each of the terms individually in separate models; only models with significant interaction terms are presented, and we examined simple slopes to interpret these. We used standardized parameter estimates to enable comparison of the magnitude of the associations across independent variables. We used SPSS, version 20 (SPSS Inc, Chicago, IL) to conduct all analyses.

TABLE 1—Sociodemographic Characteristics Among a 2003 National Internet Sample of Transgender Persons

Characteristic	Total (n = 1093), No. (%) or Mean ±SD	Transgender Women (n = 629), No. (%) or Mean ±SD	Transgender Men (n = 464), No. (%) or Mean ±SD	*P*
Age, y	33.01 ±12.04	38.06 ±12.24	26.17 ±7.57	<.001
Race/ethnicity				.623
White	868 (79.4)	508 (80.8)	360 (77.6)	
Latino	56 (5.1)	29 (4.6)	27 (5.8)	
African American	26 (2.4)	14 (2.2)	12 (2.6)	
Asian/Pacific Islander	17 (1.6)	10 (1.6)	7 (1.5)	
Native American	11 (1.0)	4 (0.6)	7 (1.5)	
Multirace	77 (7.0)	39 (6.2)	38 (8.2)	
Other	38 (3.5)	25 (4.0)	13 (2.8)	
Education				.69
≤ high school	137 (12.5)	81 (12.9)	56 (12.1)	
≥ some college	956 (87.5)	548 (87.1)	408 (87.9)	
Annual household income, $				<.001
≤ 20 000	321 (29.4)	132 (21.0)	189 (40.7)	
> 20 000	745 (68.2)	483 (76.8)	262 (56.5)	
Marital status				<.001
Married or in civil union	215 (19.7)	179 (28.5)	36 (7.8)	
Widowed, divorced, or separated	180 (16.5)	156 (24.8)	24 (5.2)	
Single, never married	697 (63.8)	294 (46.7)	403 (87.0)	
Community				.01
Metropolitan area	434 (39.7)	231 (36.7)	203 (43.8)	
Medium or small town or rural	623 (57.0)	381 (60.6)	242 (52.2)	

Note. Differences in age were detected by *t* tests for independent samples. Differences in the other demographic variables were detected by χ^2 tests.

RESULTS

Of the 1373 people enrolled, 1137 (82.8%) completed the mental health section of the survey. After exclusion of 44 suspicious surveys, our analytic sample numbered 1093, or 79.6% of enrollees.

Participant Characteristics

Sociodemographic characteristics for the total sample (n = 1093) and by gender (57.5% transgender women; 42.5% transgender men) are shown in Table 1. For the total sample, participants' mean age was 33.01 years (SD = 12.04 years; range = 18–70 years). The majority were White (79.4%) and had completed at least some college (87.5%). Median annual household income was $33 500, with nearly one third earning less than $20 000. Most participants were single and never married (63.8%), although some were married or in a legally recognized civil union (19.7%). The 2 gender groups (transgender women and men) were similar in race/ethnicity and education, but differed in age, income, marital status, and community size. Transgender men were significantly younger than transgender women, with a higher proportion reporting an annual household income of $20 000 or less; single, never married status; and urban residence.

Analysis of zip codes showed participation from 48 of the 50 states (no respondents from Montana or South Dakota), the District of Columbia, Puerto Rico, the Virgin Islands, and the military zip code for Europe.[53] The proportion of participants from the 15 most populated states, with minor exceptions, approximated the relative population size of that state. Participants from Minnesota, Oregon, Missouri, and Colorado were overrepresented. Participants were less likely than the general population measured in the 2000 US Census[59] to live in metropolitan areas, illustrating the success of the Internet in reaching participants in rural areas or small towns.

Enacted and felt stigma. Participants reported a median of 2 (range = 0–10) different experiences of enacted stigma or discrimination (Table 2). The median was higher for transgender women than men (2 vs 1; $Z = 10.33$; $P = .001$). For both groups, the most prevalent type of enacted stigma was verbal harassment. The mean score for the Stigma Consciousness Scale (felt stigma) was 4.60 (SD = 0.93; range = 1.3–7.0). Scores did not differ significantly by gender.

Mental health. Compared with the BSI-18 community norms,[56] transgender respondents had disproportionately high rates of depression (44.1%), anxiety (33.2%), somatization (27.5%), and overall psychological distress (40.1%; Table 2). The odds of depression and anxiety were, respectively, 2.19 and 1.36 times as high among transgender women as men; the odds of somatization were 0.71 times as high for transgender women as men, after adjustment for demographic variables. To examine whether these high rates of psychological distress were,

TABLE 2—Stigma and Mental Health Characteristics Among a 2003 National Internet Sample of Transgender Persons

Variable	Total (n = 1093), No. (%) or Mean ±SD	Transgender Women (n = 629), No. (%) or Mean ±SD	Transgender Men (n = 464), No. (%) or Mean ±SD	AOR (95% CI) or *t* (*df*)	*P*
Enacted Stigma					
Verbal abuse, harassment	769 (70.4)	405 (64.4)	364 (78.4)	0.71 (0.51, 0.98)	.037
Problems getting a job	414 (37.9)	189 (30.0)	225 (48.5)	0.64 (0.47, 0.86)	.004
Problem getting health services	271 (24.8)	120 (19.1)	151 (32.5)	0.56 (0.41, 0.79)	<.001
Physical abuse	258 (23.6)	143 (22.7)	115 (24.8)		
Lost a job	255 (23.3)	146 (23.2)	109 (23.5)		
Sexual abuse or assault	163 (14.9)	95 (15.1)	68 (14.7)		
Denied or lost housing	127 (11.6)	61 (9.7)	66 (14.2)		
Arrested	52 (4.8)	39 (6.2)	13 (2.8)	2.40 (1.14, 5.03)	.021
Problem getting HIV prevention services	37 (3.4)	14 (2.2)	23 (5.0)		
Problem getting substance abuse treatment	14 (1.3)	7 (1.1)	7 (1.5)		
Experiences of enacted stigma, median	2	2	1	10.33 (1)	.001
Felt stigma[a]	4.60 ±0.93	4.65 ±0.95	4.51 ±0.92		
Mental health					
BSI-18/GSI raw score[b]	17.97 ±14.22	16.76 ±13.79	19.61 ±14.63		
Depression	482 (44.1)	309 (49.1)	173 (37.3)	2.19 (1.63, 2.94)	<.001
Anxiety	363 (33.2)	209 (33.2)	154 (33.2)	1.36 (1.00, 1.84)[c]	.048
Somatization	301 (27.5)	143 (22.7)	158 (34.1)	0.71 (0.52, 0.97)	.034
GSI	438 (40.1)	257 (40.9)	181 (39.0)	1.61 (1.19, 2.16)	.002

Note. AOR = adjusted odds ratio; BSI = Brief Symptom Inventory; CI = confidence interval; GSI = Global Severity Index. Differences between the gender groups were tested by logistic regression, with control for differences in age, income, marital status, and community.
[a]Measured by the 10-item Stigma Consciousness Scale, with answers on a 7-point Likert scale (strongly agree to strongly disagree).
[b]For the BSI-18 subscales, percentages reflect a T score of 63 or higher, corresponding to the 90th percentile of community norms of 605 men and 517 women.[56] For the GSI, percentages reflect a T score of 63 or higher, or at least 2 subscales with a T score of 63 or higher.
[c]After control for differences in age, income, marital status, and community, transgender women were more anxious than transgender men (marginally significant).

at least in part, a reflection of gender dysphoria, we regressed the BSI-18 GSI scores on our measure of gender dysphoria but found no significant association.

Associations

Demographics, passing, outness, and enacted stigma. Step 1 of the hierarchical regression with enacted stigma as the dependent variable showed that being a person of color (B = 0.119; $P < .001$) and having less income (B = –0.192; $P < .001$) were associated with more types of discrimination (Table 3). In the second step, both passing (B = 0.130; $P < .001$) and outness (B = 0.120; $P < .001$) were associated with more types of discrimination. Finally, with interaction terms (gender × passing, gender × outness) added, the latter was significant (B = –0.220; $P < .05$). To avoid collinearity, we entered the interactions into the model 1 at a time. Only the interaction between gender and outness was significant and thus retained in the final model. To further examine this interaction, we conducted the regression analysis separately for each gender group. For both gender groups, passing and outness were positively associated with enacted stigma. However, the association between outness and discrimination was stronger for transgender men (B = 0.183; $P = .001$) than women (B = 0.084; $P < .05$).

Demographics, passing, outness, and felt stigma. For the regression with felt stigma as the dependent variable, step 1 showed that younger age (B = –0.091; $P < .05$) and being married or in a civil union (B = –0.081; $P < .05$) were associated with higher levels of felt stigma (Table 3). Step 2 showed that passing was associated with higher levels of felt stigma (B = 0.129; $P < .001$). Also in step 2, gender became significant (B = 0.072; $P < .05$), but marital status was no longer significant. We found no significant association for outness. However, adding the interaction terms in step 3 (gender × passing and gender × outness, each entered separately) produced an association of outness with felt stigma that differed by gender. Further examination of the significant interaction showed that for transgender women only, lower levels of outness were significantly associated with higher levels of felt stigma (B = –0.183, $P < .001$); among transgender men, we did not find a significant association.

Demographics, minority stress processes, social support and identity pride, and mental health. In the first step of the hierarchical regression with the BSI-18 GSI as the dependent variable, we entered demographics. Age (B = –0.170; $P < .001$), education (B = –0.084; $P < .01$), income (B = –0.084; $P < .01$), and community size (B = –0.074; $P < .05$) were negatively associated with psychological distress (Table 4). In step 2, we added enacted stigma, felt stigma, and passing to the model. Enacted stigma (B = 0.137; $P < .001$) and felt stigma (B = 0.108; $P < .001$) were positively associated with psychological distress; we found no significant association for passing. In step 3, we added the 3 hypothesized moderators. Family support (B = –0.164; $P < .001$), peer support (B = –0.092;

TABLE 3—Regressions of Enacted and Felt Stigma on Demograhics, Passing, and Outness Among a National Internet Sample of Transgender Persons

Variable	Step 1			Step 2			Step 3		
	b (SE)	B	*t*	b (SE)	B	*t*	b (SE)	B	*t*
Enacted stigma[a]									
Age	−0.005 (0.01)	−0.033	−0.81	−0.009 (0.01)	−0.057	−1.40	−0.008 (0.01)	−0.051	−1.23
Gender (transgender women)	−0.258 (0.14)	−0.065	−1.86	−0.329 (0.14)	−0.083	−2.37*	0.489 (0.42)	0.123	1.18
Race/ethnicity (non-White)	0.583 (0.15)	0.119	3.94***	0.584 (0.15)	0.119	3.98***	0.580 (0.15)	0.118	3.95***
Education	−0.014 (0.18)	−0.002	−0.08	0.072 (0.18)	0.012	0.40	0.040 (0.18)	0.007	0.22
Income, $ 1000s	−0.009 (< 0.01)	−0.192	−6.07***	−0.008 (< 0.01)	−0.178	−5.65***	−0.008 (< 0.01)	−0.178	−5.67***
Marital status (single, never married)	0.090 (0.16)	0.022	0.57	0.111 (0.16)	0.027	0.71	0.116 (0.16)	0.029	0.74
Community (metropolitan area)	0.062 (0.12)	0.016	0.51	0.057 (0.12)	0.014	0.48	0.030 (0.12)	0.008	0.25
Investment in passing				0.173 (0.04)	0.130	4.01***	0.181 (0.04)	0.136	4.19***
Outness				0.176 (0.05)	0.120	3.78***	0.203 (0.05)	0.138	4.20***
Gender × outness							−0.095 (0.05)	−0.220	−2.09*
Felt stigma[b]									
Age	−0.007 (< 0.01)	−0.091	−2.13*	−0.007 (< 0.01)	−0.095	−2.22*	−0.006 (< 0.01)	−0.084	−1.98*
Gender (transgender women)	−0.096 (0.07)	−0.051	−1.40	−0.136 (0.07)	−0.072	−1.98*	0.462 (0.20)	0.244	2.26*
Race/ethnicity (non-White)	0.053 (0.07)	0.023	0.73	0.060 (0.07)	0.026	0.84	0.058 (0.07)	0.025	0.80
Education	0.029 (0.09)	0.010	0.33	0.066 (0.09)	0.023	0.74	0.042 (0.09)	0.015	0.47
Income, $ 1000s	−0.001 (< 0.01)	−0.056	−1.71	−0.001 (< 0.01)	−0.052	−1.59	−0.001 (< 0.01)	−0.052	−1.61
Marital status (single, never married)	−0.157 (0.08)	−0.081	−2.01*	−0.142 (0.08)	−0.073	−1.84	−0.139 (0.08)	−0.072	−1.80
Community (metropolitan area)	−0.095 (0.06)	−0.050	−1.60	−0.094 (0.06)	−0.049	−1.59	−0.091 (0.06)	−0.048	−1.54
Investment in passing				0.082 (0.02)	0.129	3.83***	0.088 (0.02)	0.138	4.11***
Outness				−0.013 (0.02)	−0.019	−0.57	0.006 (0.02)	0.008	0.25
Gender × outness							−0.069 (0.02)	−0.338	−3.10**

Note. The sample size was n = 1093.
[a]Model statistics for the final model were R^2 = 0.10; R^2 adjusted = 0.09; F = 11.45; df = 10; P < .001; SE = 1.87.
[b]Model statistics for the final model were R^2 = 0.04; R^2 adjusted = 0.03; F = 4.62; df = 10; P < .001; SE = 0.92.
*$P \leq .05$; **$P \leq .01$; ***$P \leq .001$.

$P<.01$), and identity pride (B = −0.068; $P<.05$) were each negatively associated with psychological distress. In step 4, we added interaction terms between the minority stress processes and these 3 moderators. Only the interaction term between enacted stigma and peer support was significant. Further examination of this interaction indicated that the association between enacted stigma and psychological distress was significant for low (B = 0.243; $P<.001$) and moderate (B = 0.206; $P<.001$) but not for high (B = −0.036) peer support.

DISCUSSION

In comparison with norms for nontransgender men and women,[56] our transgender sample had disproportionately high rates of depression, anxiety, somatization, and overall psychological distress. These mental health outcomes were not merely a manifestation of gender dysphoria. Instead, the reported distress was associated with enacted and felt stigma, as predicted by Meyer's minority stress model.[10,11] Although similar findings have been reported in other qualitative and quantitative studies,[5,8,16,17,19–22,50–52,60–62] our study addressed the limitations of previous research by using standardized measures of mental health and recruiting a large, heterogeneous sample of transgender women and men from across the United States. Thus, even though we recruited a convenience sample, our findings are likely to be applicable to the broader transgender population. For example, a recent study that used respondent-driven sampling to achieve a heterogeneous sample of the transgender population in Ontario, Canada, also found high rates of depression (61% for transgender women and 66% for transgender men) associated with transgender-related stigma and discrimination.[63,64]

As hypothesized, both enacted and felt stigma were positively associated with psychological distress. With addition of the hypothesized moderators in step 3 of the hierarchical regression, the association between enacted stigma and psychological distress gained in strength, whereas the association with felt stigma diminished (but remained significant); family support, peer support, and identity pride all were negatively associated with psychological distress, confirming that these assets are protective factors. Moreover, peer support significantly moderated the relationship between enacted stigma and psychological distress, thus emerging as a demonstrated factor of resilience in the face of actual experiences of discrimination. Only at high (but not low or medium) levels of peer support was enacted stigma not

TABLE 4—Regression of Brief Symptom Inventory 18 Global Severity Index on Demographics, Minority Stress Processes, Social Support, and Identity Pride Among a National Internet Sample of Transgender Persons

	Step 1			Step 2			Step 3			Step 4		
Variable	b (SE)	B	*t*	b (SE)	B	*t*	b (SE)	B	*t*	b (SE)	B	*t*
Age	−0.200 (0.05)	−0.170	−4.06***	−0.186 (0.05)	−0.158	−3.85***	−0.168 (0.05)	−0.143	−3.51	−0.169 (0.05)	−0.143	−3.53***
Gender (transgender women)	−0.733 (1.02)	−0.025	−0.72	−0.544 (1.01)	−0.019	−0.54	~1.134 (1.00)	−0.039	−1.14	~1.085 (1.00)	−0.038	−1.09
Race/ethnicity (non-White)	1.290 (1.10)	0.036	1.18	0.756 (1.08)	0.021	0.70	0.553 (1.06)	0.015	0.52	0.567 (1.05)	0.016	0.54
Education	−3.627 (1.34)	−0.084	−2.70**	−3.422 (1.32)	−0.079	−2.59**	~3.559 (1.29)	−0.083	−2.76	~3.594 (1.29)	−0.083	−2.79**
Income, $ 1000s	−0.027 (0.01)	−0.084	−2.62**	−0.016 (0.01)	−0.049	−1.53	−0.019 (0.01)	−0.058	−1.84	−0.018 (0.01)	−0.056	−1.80
Marital status (single, never married)	−0.984 (1.17)	−0.033	−0.84	−0.720 (1.14)	−0.024	−0.63	−0.086 (1.12)	−0.003	−0.08	−0.100 (1.12)	−0.003	−0.09
Community (metropolitan area)	−2.144 (0.89)	−0.074	−2.41*	−2.063 (0.87)	−0.071	−2.36*	−0.976 (0.88)	−0.034	−1.11	−1.003 (0.88)	−0.035	−1.14
Enacted Stigma				0.994 (0.24)	0.137	4.15***	1.244 (0.24)	0.171	5.24***	2.180 (0.53)	0.299	4.09***
Felt stigma				1.635 (0.49)	0.108	3.35***	1.047 (0.49)	0.069	2.16*	1.024 (0.49)	0.067	2.11*
Investment in passing				0.465 (0.30)	0.048	1.56	0.180 (0.32)	0.019	0.56	0.190 (0.32)	0.020	0.59
Family support							~1.238 (0.23)	−0.164	−5.32***	~1.250 (0.23)	−0.165	−5.38***
Peer support							−0.827 (0.29)	−0.092	−2.81**	−0.259 (0.41)	−0.029	−0.63
Identity pride							−0.724(0.35)	−0.068	−2.08*	−0.752 (0.35)	−0.071	−2.17*
Enacted stigma × peer support										−0.266 (0.14)	−0.156	−1.96*

Note. The sample size was n = 1093. Model statistics for the final model were R^2 = 0.15; R^2 adjusted = 0.14; $F(14)$ = 13.00; P < .001; SE = 13.16.
*$P \leq .05$; **$P \leq .01$; ***$P \leq .001$.

associated with psychological distress, which suggests that the negative impact of enacted stigma on mental health is pervasive and that regular contact with peers is necessary to ameliorate it.

Together, these results offer support for the value of transgender individuals connecting with similar others, possibly providing the opportunity to question stigma from the majority culture and reappraise their experiences in a self-affirmative way, which is consistent with what has been postulated and observed among gay and lesbian individuals.[42,43,65] This finding is particularly pertinent because previous research found that transgender people have higher levels of depression and lower levels of peer and family support than their gay, lesbian, and bisexual counterparts.[60] These results support a need to promote resilience by facilitating ample peer support.

As anticipated, investment in passing, which might limit identity affirmation and positive self-evaluation, was positively associated with felt stigma, and outness was positively associated with enacted stigma, especially for transgender men. However, contrary to our expectations, passing was also positively associated with enacted stigma. This finding could indicate that concealment—an internal, proximal minority stress process—is indeed a direct product of external, distal minority processes of discrimination and prejudice, consistent with the minority stress model.[10] What remains unclear is to what extent concealment (operationalized in our study as investment in passing, rather than actual success in passing) might help transgender individuals to avoid continued enacted stigma, because enacted stigma was operationalized as ever having experienced various forms of discrimination. It is also important to note that, in addition to a minority process of concealment, investment in passing for many transgender individuals constitutes a positive goal in the process of actualizing and affirming their gender identity.[66]

For transgender women only, lower levels of outness were associated with higher levels of felt stigma. This might reflect the widely held belief that male gender nonconformity carries greater stigma than does female gender nonconformity,[28,30] particularly if this belief has not been sufficiently challenged (or tested) through coming out. Our finding that age was negatively associated with felt stigma (and not with enacted stigma) might be an indication of increased years of outness allowing for the development of resilience not captured in our study (e.g., hardiness) and is consistent with previous research findings among transgender women[22] as well as lesbian and bisexual women.[15] Our finding that being a person of color and having less income was associated with more types of discrimination or enacted stigma is consistent with theory and research on the compounding effects of intersecting multiple minority statuses and environmental stressors.[10,51,67,68]

Our ability to recruit a large community sample of transgender people, with good geographic and identity diversity, presented an important opportunity to test hypotheses about gender differences in our measures of stigma and mental health. It is generally assumed that transgender women experience greater levels of stigma and suffer greater psychological distress than do transgender men.[27,28,30] Our empirical findings offer a more nuanced picture.

Contrary to expectations, the odds of specific types of enacted stigma (verbal harassment, problems getting a job, problems getting health and substance abuse services) were higher for transgender men than women. However, the odds for depression were clearly higher for transgender women than men, which is similar to published findings.[8] It is possible that, like nontransgender women,[45] transgender women are subject to environmental provocative experiences that are not specific to being transgender but that contribute to their higher rates of depression. For example, we found that many transgender women experience a loss of status

and privilege as they transition to the female gender role, whereas transgender men describe the opposite (W. O. B. et al., unpublished data, January, 2010). Such changes might make the former group more vulnerable to depression.

Finally, in contrast to our findings on depression, the odds of somatization were higher for transgender men than women. In the general population, rates of somatization are higher among women than men[69]; however, we used T scores that should have accounted for a general gender difference. Future research is needed to illuminate this finding.

Strengths and Limitations

We used online convenience sampling and a cross-sectional study design. Future research with a longitudinal design is recommended to examine the temporal relationships between stigma and mental health and to study how transgender individuals may develop resilience in the face of stigma over time.

Internet-based recruitment and data collection have distinct advantages, especially for reaching marginalized, geographically dispersed minority populations.[53] Our large sample reflected the full spectrum of gender diversity present in this community from both urban and rural areas of the United States.[70] Internet survey research also has limitations and challenges, however, such as the digital divide (e.g., racial/ethnic minorities were underrepresented in our sample) and validity concerns (e.g., whether participants are who they say they are and attempts to complete the survey more than once to obtain additional compensation).[71] Our protocol attempted to reduce some of those inherent problems through rigorous validity checks.

We conducted a secondary data analysis of a larger research project not specifically designed to test the minority stress model.[10–12] As a consequence, several of our measures were not as strong as they could have been. For example, the measure of family support only contained 2 items on perceived support of transgender identity and did not assess broader social and emotional support. A more direct test of the minority stress model among a transgender sample is recommended.

Conclusions

In a large and geographically diverse online sample of the US transgender population, enacted and felt stigma were positively associated with psychological distress as measured by the BSI-18 GSI. These findings offer support for the minority stress model. Peer support emerged as an ameliorating asset, significantly moderating the association between enacted stigma and mental health. After adjustment for demographic factors, few differences appeared between transgender women and men.

In addition to promoting resilience by enhancing peer support and other ameliorating assets among affected individuals and communities, interventions, advocacy, and public policy initiatives are needed to confront the social structures (e.g., gender-segregated restrooms and social groups), norms (e.g., gender role expectations), and attitudes (e.g., prejudice in the workplace) that produce minority stress to reduce the high rates of psychological distress found among transgender and other minority populations. ■

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Contributors

W. O. Bockting originated the study and led the writing. M. H. Miner provided statistical advice, supervised data analysis, and assisted with interpretation and writing. R. E. Swinburne Romine completed the final data analysis and prepared the tables. A. Hamilton assisted with data analyses and writing. E. Coleman conducted the literature review and assisted with interpretation and writing.

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Human Participant Protection

The University of Minnesota institutional review board approved the study.

References

1. Bockting WO. From construction to context: gender through the eyes of the transgendered. *SIECUS Rep.* 1999;28(1):3–7.

2. Bockting WO, Avery E, eds. *Transgender Health and HIV Prevention: Needs Assessment Studies From Transgender Communities Across the United States.* Binghamton, NY: Haworth Press; 2005.

3. Kammerer N, Mason T, Connors M, Durkee R. Transgender health and social service needs in the context of HIV risk. In: Bockting WO, Kirk S, eds. *Transgender and HIV: Risks, Prevention, and Care.* New York, NY: Haworth Press; 2001:39–57.

4. Melendez RM, Pinto R. "It's really a hard life": love, gender and HIV risk among male-to-female transgender persons. *Cult Health Sex.* 2007;9(3):233–245.

5. Nemoto T, Sausa LA, Operario D, Keatley J. Need for HIV/AIDS education and intervention for MTF transgenders: responding to the challenge. *J Homosex.* 2006;51(1):183–202.

6. Lombardi EL, Wilchins RA, Priesing D, Malouf D. Gender violence: transgender experiences with violence and discrimination. *J Homosex.* 2002;42(1):89–101.

7. Bockting WO, Robinson BE, Forberg J, Scheltema K. Evaluation of a sexual health approach to reducing HIV/STD risk in the transgender community. *AIDS Care.* 2005;17(3):289–303.

8. Clements-Nolle K, Marx R, Guzman R, Katz M. HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: implications for public health intervention. *Am J Public Health.* 2001;91(6):915–921.

9. Díaz RM, Ayala G, Bein E, Henne J, Marin BV. The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 US cities. *Am J Public Health.* 2001;91(6):927–932.

10. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychol Bull.* 2003;129(5):674–697.

11. Meyer IH. Minority stress and mental health in gay men. *J Health Soc Behav.* 1995;36(1):38–56.

12. Brooks VR. *Minority Stress and Lesbian Women.* Lexington, MA: Lexington Books; 1981.

13. Scambler G, Hopkins A. Being epileptic: coming to terms with stigma. *Sociol Health Illn.* 1986;8(1):26–43.

14. Jones EE, Farina A, Hastorf AH, Markus H, Miller DT, Scott RA. *Social Stigma: The Psychology of Marked Relationships.* New York, NY: Freeman; 1984.

15. Morris JF, Waldo CR, Rothblum ED. A model of predictors and outcomes of outness among lesbian and bisexual women. *Am J Orthopsychiatry.* 2001;71(1):61–71.

16. Bockting WO, Robinson BE, Rosser BRS. Transgender HIV prevention: a qualitative needs assessment. *AIDS Care.* 1998;10(4):505–525.

17. Minnesota Department of Health, AIDS/STD Prevention Services Section. *Minnesota Comprehensive HIV/STD Prevention Plan 1995–1996.* Minneapolis, MN: Minnesota Department of Health; 1994.

18. Nemoto T, Iwamoto M, Operario D. HIV risk behaviors among Asian and Pacific Islander male-to-female transgenders. *Community Psychol.* 2003;36:31–35.

19. Clements-Nolle K, Marx R, Katz M. Attempted suicide among transgender persons: the influence of

gender-based discrimination and victimization. *J Homosex.* 2006;51(3):53–69.

20. Sugano E, Nemoto T, Operario D. The impact of exposure to transphobia on HIV risk behavior in a sample of transgendered women of color in San Francisco. *AIDS Behav.* 2006;10(2):217–225.

21. Nemoto T, Bödeker B, Iwamoto M. Social support, exposure to violence and transphobia, and correlates of depression among male-to-female transgender women with a history of sex work. *Am J Public Health.* 2011;101 (10):1980–1988.

22. Nuttbrock L, Hwahng S, Bockting W, et al. Psychiatric impact of gender-related abuse across the life course of male-to-female transgender persons. *J Sex Res.* 2010; 47(1):12–23.

23. Bockting WO. The assessment and treatment of gender dysphoria. *Dir Clin Couns Psychol.* 1997;7(11):1–23.

24. Bockting WO. Transgender coming out: implications for the clinical management of gender dysphoria. In: Bullough B, Bullough VL, Elias J, eds. *Gender Blending.* Amherst, NY: Prometheus Books; 1997:48–52.

25. Bockting WO, Coleman E. Developmental stages of the transgender coming-out process: toward an integrated identity. In: Ettner R, Monstrey S, Eyler E, eds. *Principles of Transgender Medicine and Surgery.* Binghamton, NY: Haworth Press; 2007:185–208.

26. Pfäfflin F, Junge A. Nachuntersuchungen nach geschlechtsumwandlung. Eine kommentierte literaturübersicht 1961–1991 [Further examinations of sex reassignment. An annotated bibliography 1961–1991]. In: Pfäfflin F, Junge A, eds. *Geschlechtsumwandlung. Abhandlungen zur transsexualitaet* [Sex Reassignment: Treatments for Transsexualism]. Stuttgart, Germany: Schattauer; 1992:149–457.

27. Verschoor AM, Poortinga J. Psychosocial differences between Dutch male and female transsexuals. *Arch Sex Behav.* 1988;17(2):173–178.

28. Cohen-Kettenis PT, Wallien M, Johnson LL, Owen-Anderson AFH, Bradley SJ, Zucker KJ. A parent-report gender identity questionnaire for children: a cross-national, cross-clinic comparative analysis. *Clin Child Psychol Psychiatry.* 2006;11(3):397–405.

29. Kuiper B, Cohen-Kettenis P. Sex reassignment surgery: a study of 141 Dutch transsexuals. *Arch Sex Behav.* 1988;17(5):439–457.

30. Wallien MSC, Veenstra R, Kreukels BPC, Cohen-Kettenis PT. Peer group status of gender dysphoric children: a sociometric study. *Arch Sex Behav.* 2010;39 (2):553–560.

31. Cole SW, Kemeny ME, Taylor SE, Visscher BR, Fahey JL. Accelerated course of human immunodeficiency virus infection in gay men who conceal their homosexual identity. *Psychosom Med.* 1996;58(3):219–231.

32. DiPlacido J. Minority stress among lesbians, gay men, and bisexuals: a consequence of heterosexism, homophobia, and stigmatization. In: Herek GM, ed. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men, and Bisexuals.* Vol 4. Thousand Oaks, CA: Sage Publications; 1998:138–159.

33. Miller CT, Major B. Coping with stigma and prejudice. In: Heatherton TF, Kleck RE, Hebl MR, Hull JG, eds. *The Social Psychology of Stigma.* New York, NY: Guilford Press; 2000:243–272.

34. Smart L, Wegner DM. Covering up what can't be seen: concealable stigma and mental control. *J Pers Soc Psychol.* 1999;77(3):474–486.

35. Waldo CR. Working in a majority context: a structural model of heterosexism as minority stress in the workplace. *J Couns Psychol.* 1999;46(2):218–232.

36. Elizur Y, Ziv M. Family support and acceptance, gay male identity formation, and psychological adjustment: a path model. *Fam Process.* 2001;40(2):125–144.

37. Frost DM, Parsons JT, Nanin JE. Stigma, concealment and symptoms of depression as explanations for sexually transmitted infections among gay men. *J Health Psychol.* 2007;12(4):636–640.

38. Hershberger SL, D'Augelli AR. The impact of victimization on the mental health and suicidality of lesbian, gay, and bisexual youths. *Dev Psychol.* 1995;31(1):65–74.

39. Jordan KM, Deluty RH. Coming out for lesbian women: its relation to anxiety, positive affectivity, self-esteem, and social support. *J Homosex.* 1998;35(2):41–63.

40. Schmitt JP, Kurdek LA. Personality correlates of positive identity and relationship involvement in gay men. *J Homosex.* 1987;13(4):101–109.

41. Wright ER, Perry BL. Sexual identity distress, social support, and the health of gay, lesbian, and bisexual youth. *J Homosex.* 2006;51(1):81–110.

42. Crocker J, Major B. Social stigma and self-esteem: the self-protective properties of stigma. *Psychol Rev.* 1989;96(4):608–630.

43. Crocker J, Major B. The self-protective properties of stigma: evolution of a modern classic. *Psychol Inquiry.* 2003;14(3–4):232–237.

44. Frable DES, Wortman C, Joseph J. Predicting self-esteem, well-being, and distress in a cohort of gay men: the importance of cultural stigma, personal visibility, community networks, and positive identity. *J Pers.* 1997;65(3):599–624.

45. Kessler RC, Price RH, Wortman CB. Social factors in psychopathology: stress, social support, and coping processes. *Annu Rev Psychol.* 1985;36:531–572.

46. Shade BJ. Coping with color: the anatomy of positive mental health. In: Ruiz DS, ed. *Handbook of Mental Health and Mental Disorder Among Black Americans.* Westport, CT: Greenwood Press; 1990:273–289.

47. Nuttbrock L, Rosenblum A, Blumenstein R. Transgender identity affirmation and mental health. *Int J Transgenderism.* 2002;6(4):1–11.

48. Doorn CD. *Towards a Gender Identity Theory of Transsexualism* [dissertation]. Amsterdam, Netherlands: Vrije Universiteit; 1997.

49. Gómez-Gil E, Trilla A, Salamero M, Godás T, Valdés M. Sociodemographic, clinical, and psychiatric characteristics of transsexuals from Spain. *Arch Sex Behav.* 2009;38(3):378–392.

50. Sánchez FJ, Vilain E. Collective self-esteem as a coping resource for male-to-female transsexuals. *J Couns Psychol.* 2009;56(1):202–209.

51. Mathy RM. A nonclinical comparison of transgender identity and sexual orientation: a framework for multicultural competence. *J Psychol Human Sex.* 2002;13(1): 31–54.

52. Mathy RM. Transgender identity and suicidality in a nonclinical sample: sexual orientation, psychiatric history, and compulsive behaviors. *J Psychol Hum Sex.* 2002;14(4):47–65.

53. Rosser BRS, Oakes JM, Bockting WO, Babes G, Miner M. Capturing the social demographics of hidden sexual minorities: an Internet study of the transgender population in the United States. *Sex Res Social Policy.* 2007;4(2):50–64.

54. Miner MH, Bockting WO, Swinburne Romine R, Raman S. Conducting Internet research with the transgender population: reaching broad samples and collecting valid data. *Soc Sci Comput Rev.* 2012;30(2):202–211.

55. Pinel EC. Stigma consciousness: the psychological legacy of social stereotypes. *J Pers Soc Psychol.* 1999;76 (1):114–128.

56. Derogatis LR. Brief Symptom Inventory (BSI 18). Minneapolis, MN: National Computer Systems, Pearson Inc; 2000.

57. Koslowsky M. Using effect coding for comparing models in social research. *Soc Behav Pers.* 1988;16(1): 85–90.

58. Kerlinger FN, Pedhazur EJ. *Multiple Regression in Behavioral Research.* New York, NY: Holt, Rinehart, and Winston; 1973.

59. *Statistical Abstract of the United States.* Washington, DC: US Census Bureau; 2000.

60. Bockting WO, Huang CY, Ding H, Robinson B, Rosser BRS. Are transgender persons at higher risk for HIV than other sexual minorities? A comparison of HIV prevalence and risks. *Int J Transgenderism.* 2005;8(2–3):123–131.

61. Nemoto T, Operario D, Keatley JA, Han L, Soma T. HIV risk behaviors among male-to-female transgender persons of color in San Francisco. *Am J Public Health.* 2004;94(7):1193–1199.

62. Newfield E, Hart S, Dibble S, Kohler L. Female-to-male transgender quality of life. *Qual Life Res.* 2006;15 (9):1447–1457.

63. Rotondi NK, Bauer GR, Travers R, Travers A, Scanlon K, Kaay M. Depression in male-to-female transgender Ontarians: results from the Trans PULSE project. *Can J Commun Ment Health.* 2011;30(2):113–133.

64. Rotondi NK, Bauer GR, Scanlon K, Kaay M, Travers R, Travers A. Prevalence of and risk and protective factors for depression in female-to-male transgender Ontarians: Trans PULSE project. *Can J Commun Ment Health.* 2011;30(2):135–155.

65. Corrigan P, Matthews A. Stigma and disclosure: implications for coming out of the closet. *J Ment Health.* 2003;12(3):235–248.

66. Gagné P, Tewksbury R, McGaughey D. Coming out and crossing over: identity formation and proclamation in a transgender community. *Gend Soc.* 1997;11(4):478–508.

67. Dill BT, Zambrana RE. *Emerging Intersections: Race, Class, and Gender in Theory, Policy, and Practice.* New Brunswick, NJ: Rutgers University Press; 2009.

68. Weber L. *Understanding Race, Class, Gender, and Sexuality: A Conceptual Framework.* 2nd ed. New York, NY: Oxford University Press; 2010.

69. Wool CA, Barsky AJ. Do women somatize more than men? Gender differences in somatization. *Psychosomatics.* 1994;35(5):445–452.

70. Horvath KJ, Iantaffi A, Swinburne Romine RE, Bockting W. A comparison of mental health, substance use, and sexual risk behaviors between rural and non-rural transgender persons. *J Homosex.* In press.

71. Pequegnat W, Rosser BRS, Bowen AM, et al. Conducting Internet-based HIV/STD prevention survey research: considerations in design and evaluation. *AIDS Behav.* 2007;11(4):505–521.

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